

Illustration of seeing distances and required stopping distances

This study comes from work done by the University of Michigan Transportation Research Institute (UMTRI). The detection distances are for pedestrians near a work zone somewhat comparable to being near emergency vehicles but not illuminated by fixed lighting. The attached slide details detection distance for retroreflective clothing is the average for the two levels of intensity used in the UMTRI study. The distances shown in the slide are 125 feet (for normal clothing) and 891 feet (for retroreflective clothing). The stopping distances are based on a driver reaction time of 1.5 seconds and braking deceleration of 0.5 g. The range shown is from 159 feet (for 35 MPH) to 425 feet (for 65 MPH).

The retroreflective clothing used in the study was very good relative to most civilian retroreflective clothing (clothing in the study was ANSI Class 2 or 3). However, weaker retroreflective treatments would still provide substantial improvement in seeing distances.

The conditions of the study were reasonably realistic. A work zone was set up on a test track and subjects drove slowly through the zone, indicating when they could detect a worker who was either dressed in typical, nonretroreflective clothing, or was wearing a retroreflective vest or jacket. Such conditions would be similar to that of an emergency incident.



Seeing distances and stopping distances

